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IMPORTANT COMMUNICATION LINES AND CITIES[20]

489 In the region of East China the main north-south lines of communication are the Tientsin--P'u-k'ou Railway, the Grand Canal, and a few major highways. Crossing these lines at a right angle are the Chiao-chi (Tsingtao-Tsinan), Lunghai, and Nanking-Shanghai railways and the Yangtze River, which in this region is navigable all year round.

Tsinan (1), the capital of Shantung Province, is the rail and highway hub in northwest Shantung. The city thrives on rapidly expanding light industries and is in a strategic position because the Tientsin--P'u-k'ou Railway bridge spanning the Yellow River is immediately to the north. Tsinan is linked with the Shantung Peninsula by the Chiao-chi Railway, which 288 terminates at the port of Tsingtao . Tsingtao owes its early development to foreign effort, and it is the largest textile industrial center in this province. It is in the new No. 6 National

20. Chung-hua Jen-min Kung-ho-kuo Fen-sheng Ti-t'u, op. cit.; Ch'eng Kuang-Yü, Chung-kuo Tu-shih [The Cities of China], Taipei, Chung-hua wen-hua ch'u-pan shih-yeh wei-yüan-hui, 1953.

288 Textile Factory at Tsingtao that a woman worker, Ho Chien-hsiu, developed her accelerated method of work which won her international recognition (at least among the Soviet nations) as a "labor heroine." A convalescent hospital and rest camp for "model laborers" has been established at the famous beach resort.

•489 The port of Tsingtao, whose extensive rail spurlines connect the wharf with nearby warehouses, has a breakwater over 1,300 feet in length.

The Tientsin-P'u-k'ou Railway passes Tsinan, Tzu-yang (, and Hsü-chou ( ). Hsü-chou is in Kiangsu Province and has been the locale of many decisive battles in ancient and modern Chinese history. The Lunghai Railway links Hsü-chou with Lien-yün-kang on the coast. Lien-yün-kang, with a wharf of about 1,000 feet in length, is not an extensive port.

There is no north-to-south railway in Kiangsu Province, but the highway net is a complete one. The Grand Canal connects many eastern Kiangsu cities with Yang-chou . . ,
[317] formerly a noted resort. Besides luxury and comfort, Yang-chou also offers a large supply of salt produced in the lower Hwai River area.

489 In southeast Kiangsu the communication
361 center is, of course, Shanghai. This city, the largest in the Far East, must rely on the

489 361 Huang-p'u River and a seven-mile railway to benefit from its port of Wu-sung (Woosung) at the Yangtze (Whamgpoo) River estuary. Wu-sung faces Ch'ung-ming Island on the estuary, and the forts on Wu-sung shore defend the entrance to the Yangtze River. From Shanghai it is about 450 miles to Chi-lung (Keelung) on Formosa and about 460 miles to Nagasaki. Since the Communist occupation, the city of Shanghai has been undergoing a great deal of reorganization. Over one-hundred industrial concerns have been moved outside of the city as a sanitary measure. The northwest section of the city, downwind, is being developed into an industrial "city within a city." [349] A gigantic structure, begun on May 4, 1954, is rising on the former Hatung Garden on the western side of central Shanghai and is to be named "the Great Hall of Chinese-Soviet Friendship." Topped by a 330-foot tower, it will be the highest point in Shanghai.

There are three main routes inland from Shanghai: the Shanghai-Nanking Railway, the Shanghai-Hangchow Railway, and the Yangtze River. Nanking is, at present, the provincial capital of Kiangsu. The city is encircled by a wall twenty-one miles long -- the longest of [873] its kind in the world. The central section of this erstwhile national capital has been undergoing a face-lifting, and a cultural center is rapidly rising with Nanking University and Nanking Engineering College as its center. The

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36 numerous scenic attractions in and around Nanking are also being groomed.

The Shanghai-Hangchow Railway starts from Shanghai and goes southwest to reach Hangchow through Chia-hsing , a key communication center on the Yangtze River Delta. Hangchow is the capital of Chekiang Province and is located on the north side of the Ch'ien-t'ang River. The famed West Lake is west of the city. Chien-ch'iao, to the northeast, was formerly the home of a cadet center operated by the Nationalist Air Force. The Chekiang-Kiangsi Railway begins at Hangchow and links such cities in Chekiang as Chin-hua , where two tributaries to the Ch'ien-t'ang River meet, and Chiang-shan , which is the last stop before the railway enters Kiangsi Province. Hangchow is also connected by highway with many important cities in eastern Chekiang Province. One of these cities is Ningpo , a well-known commercial port. This city is the meeting place for two fairly navigable rivers and is, therefore, the terminal for steamer traffic on the sixteen-mile down-river stretch to the sea. The offshore Chou-shan (Chusan) island group also contributes business to Ningpo. There is a railway connecting Ningpo with Hangchow, but the condition of this railway is at present unknown. Another important city in eastern Chekiang is Shao-hsing . Nicknamed "Home of Bureaucrats," Shao-hsing is the birthplace of modern China's literary idol Lu Hsün, to whom a memorial hall in the city

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has been dedicated by the Communists. Also well-known throughout China is the wine produced in Shao-hsing. A coastal highway connects Shao-hsing with Wen-chou , located on the Ou River about twenty miles from the sea. Only wooden boats sail on this stretch of the Ou River, and the riverfront wharf facilities at Wen-chou need much improvement. Formerly a navigation lane was in use between Wen-chou and Chi-lung on Formosa.

There is no railway in Fukien Province, and the provincial capital, Foochow , must depend on the Min River and the highways to communicate with inland cities such as Chien-yang . There is a distance of about thirty miles between Foochow and the sea. The Min River is partially navigable for small woodem boats, but seagoing vessels must anchor at Lo-hsing-t'a [Pagoda Anchorage], about nine miles downriver from Foochow. An island (Nan-t'ai) in the middle of the river gives the city additional room for expansion, and it is connected with the city by two bridges. The Ma-wei Naval Yard, fifteen miles southeast of Foochow, used to build boats for the Nationalist Navy but was destroyed during the last war. Chien-yang is the transportation center of northeastern Fukien. Two tributaries to the Min River and three highways leading into Anhwei, Chekiang, and Kiangsi Provinces converge at Chien-yang. From Chien-yang a north-to-south main highway passes through many of the important cities of central Fukien and reaches Ch'ang-ting on the southwestern

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provincial border. In the early days of the Chinese Communist development, Ch'ang-ting was for a short time, used as a main base by the Red Army. The same highway runs south of Ch'ang-ting to Shang-hang, which, in the late 1920's, was also a Red Army base.

The Fukien Province coastal highway extends from Foochow southward to Amoy [illegible]. The city of Amoy is located in the southwest corner of Amoy Island at the estuary of the Chiu-lung [Nine Dragons] River. The strait between Amoy and the Mainland is about three miles wide. To the southeast of Amoy is Ku-lang-yü (Kulangsu) and between the two there is an excellent protected harbor. Amoy has extensive highways connecting it with the cities on the mainland. Offshore, but within sight of Amoy, lies the island of Quemoy. It is a bleak rock cluster, whose only permanent inhabitants are a few fishermen. At the end of the Ming Dynasty (c. 1640), a Ming general occupied this island, resisting the Manchus, until he was forced to retreat to Formosa. Now, the occupation of Quemoy by the Nationalists is focusing the attention of the entire world upon this tiny island.

Along the Yangtze River in this region are several key cities such as An-ch'ing [illegible] and Wu-hu [illegible]. Wu-hu, located on the south bank of the Yangtze River, is the largest economic center of Anhwei Province. The Ch'ing-i River cuts the city into two parts. The Huai-nan

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361 Railway terminates at the point directly opposite the Yangtze River. As of early 1955, traffic had not yet been restored on the railway running south from Wu-hu which was destroyed during the war. An-ch'ing at one time was the provincial capital. The southern edge of the city overlooks the river, with a terrain suitable for river defense The railway going north from Wu-hu passes through Hofei , the capital of Anhwei Province. Hofei is a large rice market and is linked with Pang-pu to the north by the same railway. Pang-pu is also on the Tientsin--P'u-k'ou Railway and provides a market for the coal produced at the Huai-nan Mine to the southwest, Strategically, Pang-pu has always been mentioned with Hsü-chou to the north (in Kiangsu Province) because both are on the main route between North and South China.

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Annex "A," Subparagraph 3e,
Economic Background

TRANSPORTATION AND DOMESTIC TRADE

489 The transportation facilities of East China, especially because of the region's dominant position in ocean shipping, are farther advanced than those in other regions of the country. Except in Fukien, railway transportation plays a very important role among the East China provinces; in the development of highways, special attention had been paid to the construction of a highway network in the coastal areas and linking it with the principal national highways of other regions. As for aviation, it has not been significant in local transportation because East China lacks up-to-date commercial planes. In connection with domestic trade, East China has been a major source of supply of daily necessities to the entire country. Most of China's textile and light-manufacturing factories are located in Shanghai and Tsingtao in this region.

I. RAILWAY REHABILITATION AND CONSTRUCTION

496 After World War II, the Chinese Nationalist Government exerted great effort to

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509 of the same period in 1954.[26]

489 438 A. Transportation of Key Commodities and Their Trade Routes

Before the war, East China depended upon the import of rice and flour in order to meet the consumption requirements of the larger cities in the region. In 1954, the Communists claimed that East China had become a grain-surplus region, but this is true only because grain from Central-South China is shipped by the Chekiang-Kiangsi Railway and by barges on the Yangtze River to Shanghai and other important centers in East China. Wheat from Shantung is usually shipped to Shanghai, Tientsin, or Chengchow for milling and distribution. Rice produced in Kiangsu is shipped to North and Northwest China because in recent years these have been grain-deficit regions.

B. Cotton Transportaton and Trade Routes

Generally speaking, East China is a cotton-deficit region. Shanghai and Tsingtao, the two leading textile manufacturing centers of China, need tremendous quantities of raw cotton each year. The general pattern of cotton movements in East China is shown in the following table.

26. NCNA, Peking, July 20, 1955.

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Transportation of Raw Cotton in East China*

Origin	Transportation	Destination
Shensi, Northwest China	Rail	Shantung, East China
Hopei, North China	Rail	Shantung, East China
Shansi, North China	Rail	Kiangsu, East China
Shantung, East China	Rail	Hopei, North China
		Kiangsu, East China
Honan, Central-South China	Rail	Honan, Central-South China
Shantung, East China	Coastal Shipping	Kiangsu and Shantung, East China
Hupeh, Central-South China	Inland Waterway	Honan, Central-South China
		Kiangsu, East China
Hopei, North China	Coastal Shipping	Kiangsu and Shantung, East China
Shantung, East China	Coastal Shipping	Hopei, North China

* Hsin-hua Yüeh-pao [New China Monthly], Nov. 1950, Vol. III, No. 1, p. 139. Wen-hui-Pao [Wen-hui Daily], Hong Kong, Sept., 4, Sept. 29, 1953.

1:Stanford U. S-4, 5 1956 AF15 East China
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438 Shantung is the only cotton-surplus province in East China and its output of raw cotton is consumed locally. Only a portion of the surplus is shipped to other provinces in East China or North China. The major amount of raw cotton required by Shanghai and Tsingtao mills is supplied by surplus production in the provinces of North, Central-South, and Northwest China.

C. Coal Transportation and Trade Routes

East China is one of three areas in China consistently short of coal. Within this region, only Shantung and Anhwei report a surplus in coal production. Other provinces of this region have to depend upon the supply from the principal mines of other regions. Manchuria coal is imported for Chekiang, Fukien, Kiangsu, and Anhwei. Coal from Hopei, Shantung, Shansi, and Honan is also shipped to the areas receiving coal from Manchuria. Coal from Manchuria and North China is carried by rail. The principal rail lines involved in this north-south traffic are Peking-Hankow, Hankow-Canton, Tientsin--P'u-k'ou, (Pukow), Tsinan-Tsingtao, and Shihchiachuang-Taiyuan railways. Some coal is shipped by boat to East China coastal cities from Manchuria and North China

489 ports.[27] But the coal transported by coastal
438 steamers amounts to only 11 per cent of the total shipment from North to East China.[28]

VI. DOMESTIC TRADE

438 As its final goal, Communist China aims
655 at the complete control of domestic trade by state-owned co-operatives and state "capitalistic" enterprises.

A. State-Owned Companies

Six domestic trading companies were established in 1950: (1) the China Food Company, (2) the China Textile Company, (3) the China Salt Company, (4) the China General Merchandise Company, (5) the China Coal and Building Materials Company, and (6) the China Native Products Company.[29] These companies have established branches and sub-branches in nearly all of the major cities of East China. Some of these companies such as the China General Merchandise Company and the China

27. Ching-chi Chou-pao [Economic Weekly], Shanghai, May 25, 1950, Vol. X, No. 21, p. 9; Ching-chi Nien-pao [Economic Year Book], Hong Kong, Ching-chi tao-pao She, 1952, p. 27.
28. Ibid.
29. Yuan-li Wu, An Economic Survey of Communist China, New York, Bookman Associates, 1955, p. 380.

2: Murphy G-4 (no date) 1953 AF15 East China AF15

Rival Ports

133 489 The maritime trade of south China is divided among several ports, each serving a small and well-defined hinterland outlined by mountains as separate river basins, of which the basin of the Hsi is by far the largest. The Ta Yü and Wu Yi ranges extend almost to the coast from Hong Kong north to Ningpo. Their ridges form a barrier over which very little trade passes, and the rivers which flow from their crests to the sea have cut neither easy passes across them nor extensive flood plains. The relatively short Han, Min, Wu, and Chientang Rivers, interrupted by falls and rapids over most of their courses, are navigable only for small boats, and none of them makes easy connections with other river systems. The high relief extending down to the coast, except for the few small river flood plains, makes food production as well as transport difficult. The area as a whole (southeast coastal China) must import rice, but its important exports are limited to tea and timber. The configuration of east Asia and the submerged character of the south China coastline, bring these southern ports much closer to the continental mountain mass and leave them a hinterland which is hilly, thinly populated, and unproductive compared with the Yangtze basin.

The submerged coastline of the south includes a number of good harbors, notably Foochow (the estuary of the Min River), Amoy, and Swatow, but they are too small for any volume of modern ocean shipping, and their topographically limited hinterlands do not make harbor extensions worthwhile. Railways have not yet penetrated this area, aside from the single line from Hankow to Canton, with a spur to Kowloon (the mainland adjunct to the Crown Colony of Hong Kong), a reflection of its commercial unproductiveness more than of the engineering problems which it presents.

504 The outstanding exception among south China ports is Hong Kong, possessed of the finest harbor in the Far East, a deep and well-protected roadstead between Hong Kong island and the mainland, flanked on all sides by shielding islands. Location just off the mouth of the Hsi, whose basin is the most extensive and productive lowland in south China and contains its only major transport artery, is a further advantage. The port of Hong Kong however owes its

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Raw Materials

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The basic industrial raw materials lacking in its immediate hinterland are Shanghai's major problem after the disadvantages of its site. Coal must come from north China, Japan, or Indo-China. Finished steel is largely imported (from Japan and the United States), as are petroleum products, sulfur, rubber, copper, and all other nonferrous metals except antimony and tungsten, which are supplied from the metaliferous belt running through Honan, Kweichow, and Yünnan. Shanghai is industrially out of gear with the rest of China, and in the absence of an exploitable local resource supply maintains its industrial position on imports from kindred economies overseas. China supplies the market, and the labor, for Shanghai's industrial production, both factors of considerably more locational importance for manufacturing in general than raw materials alone. Closely oriented to major ocean routes, Shanghai can economically produce goods whose raw materials must be assembled from great distances, since the cost of sea transport, especially for these bulk commodities, is a relatively minor item in total costs of production. From the Chinese hinterland, the Yangtze also transports to the city at low cost industrial raw materials produced by agriculture within the river basin: cotton, silk, vegetable oils and tallow, hides and skins, hemp, tea, bristles, wheat, tobacco, and eggs.

Aside from steel (which until recently had not been economically produced from ore anywhere in China proper), industrial machinery, and petroleum products, admittedly large cost-items in its production, Shanghai has not suffered industrially to any great extent from the local absence of resources. The city's transport connections as outlined in this chapter have been largely responsible for this, and have made possible an industrial and commercial metropolis in an agricultural economy poor in resources and in land transport.

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505 haulage on this one creek (the main water connection with the delta hinterland, although there are several others as well) between five and ten times greater than on either of the two railway lines.

In addition to the Yangtze and the Whangpoo, three major water routes connect Shanghai with the delta: Siccawei, Soochow, and Woosung Creeks (maps 3 and 5). The lower reaches of Soochow and Siccawei Creeks were periodically dredged by the Whangpoo Conservancy Board until 1936, and on the former a minimum depth of five feet at low water within a 100-foot channel was maintained as far as Soochow, where the Creek terminates. This enabled boats up to 80 tons cargo capacity to reach Soochow, and to move from there into the wider water network of the delta. Siccawei Creek provides a through route for boats up to 40 tons cargo capacity as far as Tsingpu and from there to Tai Lake. Woosung Creek makes similar connections as far as Kunshan, where it joins several other navigable waterways. Five daily "boat trains" (barges towed by a steam launch) left Shanghai for Soochow during the 1920's and 1930's, a journey of ten to twelve hours. The "trains" carried freight as well as passengers, but more deck-passenger space was available west-bound, presumably because outward-bound Shanghai manufactured goods took less space than inward-bound rice, silk, cotton, or other agricultural raw materials.

489 There were no railway wharves inside the harbor limits. Those at Woosung and Lunghua (both outside harbor limits) were relatively little used, and the Woosung railway wharves handled almost entirely inbound ocean and river cargo destined for Shanghai rather than for other cities. On the right bank of the Whangpoo there was not a single motor road before 1936.* Three large creeks, however, connected the river's right bank with the sea and with the district southeast of Shanghai. The barrier represented by the Whangpoo, and the relatively small and unproductive countryside east of the river were largely responsible for the smallness of commercial and manufacturing development in Pootung. The shipbuilding, wharves, and manufacturing located there were maintained entirely by water transport.

* In 1936 a short road was built in Pootung, extended to 37 kilometers in 1948, paralleling the river behind the wharves.

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reported by Buck. According to his figures, the grain production (or equivalent) per male adult of the population (or equivalent) within this thirty-mile radius averages 2594 kilograms, as compared with an all-China average of 1400 kilograms.[9]

The problem of how Shanghai is fed is, however, not answered merely by the facts of fertile soil, intensive cultivation, and high crop yields in its immediate hinterland. While the delta is clearly productive, it is equally clearly densely populated, and it is likely that a larger proportion of the total population of the fertile triangle lives in cities than is the case in any other area of comparable size in China (map 5).

Buck estimates that the consumption of food energy on farms in this area is 3486 calories per adult-male unit per day, a high figure for a so-called subsistence agricultural economy, and exceeded in Buck's figures for China only by the rice-tea area immediately to the south.[10] Far from being a subsistence economy, the triangle supports a relatively commercialized agriculture. Buck estimates for example, that the farmers of this area sell 61 per cent of their farm products immediately after harvest, and that 60 per cent of farm products are sold (i.e., first sale) as far away as the nearest market town, as distinct from the local village. Both of these figures are exceeded only by those from the double-cropping rice area of Kwangtung.[11]

Assuming that the favorable natural environment and the intensive farming methods result in a total food production great enough to allow a surplus for feeding the delta's cities, how is it marketed in this pre-industrial economy? Cities of the magnitude of Shanghai have hitherto never developed except where mechanization and technological improvement in agriculture have been accompanied by the growth of railways, and later, highways.* Shanghai, competing for the food surplus of the delta with Hangchow, Nanking, Soochow, and other large delta cities, added well over three millions to its population between 1843 and 1936, while agricultural practices in the delta remained in general just as they

* Ancient Rome and Peking, both cities of approximately one million long before the industrial revolution, might constitute exceptions. Both owed their size primarily to their administrative functions, and both depended heavily on water transport.

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have been during the last 1,000 years. Improvements in transport facilities during the same period were slight. As stated above in Chapter Seven, the only railway lines serving Shanghai during the twentieth century were those to Nanking and Hangchow (opened in 1908 and 1909 respectively). They have never become large volume carriers on a Western scale. Highway development contributed even less to the total transport resources of the area. For a densely populated, highly productive area which also contains several large cities dependent in varying degrees on industry, this transport network is minimal.

The Shanghai Rice Market

Rice is the basic food commodity for Shanghai. A sampling survey of workers' families in Shanghai by the Bureau of Social Affairs during 1929 and 1930* [12] showed the average worker's diet (by percentages of total money spent on food) to be 53 per cent cereals (of which rice was 90 per cent, wheat 5 per cent, and other cereals 5 per cent), 18 per cent vegetables and beans, 16 per cent meat, fish, and eggs, 8 per cent condiments, 3 per cent fruit, and 2 per cent miscellaneous. Since cereals may be presumed cheaper by weight than the other items in the list (as well as having a higher caloric value by weight unit), the importance of rice in the diet by weight (which is the leading consideration for transport problems) is thus greater than these figures indicate. Fortunately, statistics are more readily available for rice than for any of the other food items.

While no complete figures exist to show the rice supply pattern, trading in rice on the Shanghai market was recorded in considerable detail during most of the 1920's and 1930's, and an analysis of the published market reports provides a relatively clear quantitative picture of the main outlines of the city's food supply. The monthly reports issued by the General Chamber of Commerce of Greater Shanghai list supplies of rice entering the city according to source.[13]

* Chiang I-shih, Production, discusses regional differences in the consumption of cereals as between south China, the Yangtze region, and north China, and includes a table showing these differences for the major cereals, as of 1936. For the Yangtze region as a whole he estimates that rice formed 40 per cent of the cereal diet, wheat 20 per cent, minor cereals 14 per cent, and other food crops 26 per cent.

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438 Most of the places so mentioned recur every month except during
489 the rice planting season from early May to early June, and nearly all of them cluster within a relatively small area in the immediate neighborhood of Shanghai (map 5). In about half the cases they are *hsien* towns (county seats), which presumably draw on most of their respective *hsien* (counties), and in the other cases simply towns or villages which serve as collecting places for the rice-producing areas immediately around them. For the most part, they are located with indifference to existing road and railway networks. Most of the exceptions are large towns through which the road and/or railway are obliged to run in any case. The majority of the places however are located on main waterways, and in every case there is a direct water connection with Shanghai.

433 When the rice supply pattern for Shanghai as shown in these
438 reports is compared with total figures for rice production in Kiangsu province by *hsien*,[14] it is seen that for the most part only the heavy rice-producing *hsien* which lie within about 75 miles of Shanghai send amounts to the city significant enough to be recorded consistently in the market reports. If a surplus exists in the other heavy rice-producing *hsien* * then either transport costs to Shanghai are too high for this rice to compete with areas nearer the city and it therefore moves to other consuming centers, or Shanghai can draw sufficient amounts from the nearer areas at a reasonable price to fill the majority of its rice needs.

For example, Kashing, an important rice marketing center on the railway 60 miles southwest of Shanghai sends little of its rice to Shanghai, although it does send large amounts of locally produced ginger. The comparatively high unit-value by weight of ginger can bear transportation costs which make shipment of rice uneconomic by either rail or water in this case. Another rice center, however, 19 miles farther south on the railway, sends large amounts of local rice to Hangchow 39 miles away. It is near enough apparently to be included in Hangchow's tributary rice area.[15]

438 Although water transport, especially in this delta area, is relatively
505 easy and cheap, it is also relatively slow, and it is reasonable to find

* Kiangsu government figures indicate that this is the case — *Kiang-su sheng-chien*, cited above.

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upon all of the city's population. A leading commercial journal in the city remarked in 1940 that "Shanghai is an island cut off from the normal sources of supply of its staple food," and went on to point out that rice selling at that time in Wusih for CNC$15 per picul of 172 pounds sold for CNC$90 per picul in Shanghai, a price difference which certainly reflects transport difficulties as well as the abnormal situation in Shanghai. The Shanghai price of imported rice quite naturally rose to meet this level.[28] At scattered intervals during this period from 1937 to the end of 1941 when conditions permitted relatively safe water shipment to Shanghai from the delta, local rice appeared on the Shanghai market in large quantities and the price of rice from all sources dropped to nearly its pre-war levels.[29]

The part played by out-province rice is difficult to evaluate. The market reports already referred to indicate that except during the planting season out-province rice is unimportant on the Shanghai market, and at all periods under normal conditions is less important than foreign imports.[30] However, complete figures for out-province shipments of rice to Shanghai do not exist, doubtless due, at least in part, to the fact that much of it moves to the city in small boats, a flow difficult to measure. The market reports give the impression that most of Shanghai's out-province supply comes (in order of importance) from Wuhu (the chief rice center of Anhwei), the lowland areas of Kiangsi connected by lakes and rivers with the Yangtze, the lowland areas of northeastern Chekiang, and the western and southern shores of Tung Ting Lake in Hunan. All of these sources have direct water connections with Shanghai.

If the earlier opinion that Shanghai, among the other treaty ports, depended for its growth on overseas imports of rice is no longer tenable, it is perhaps reasonable to question whether at least Canton may not have profited from its similar location. The Hsi delta is the closest parallel in China to the Yangtze delta, although on a smaller scale. Like the Yangtze delta, it is a heavy rice-producing area which also contains a highly developed network of natural and artificial waterways. Kwangtung as a whole is a rice-deficiency area, and foreign imports of rice to Canton may not be destined entirely for

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consumption in the city. As in the case of Shanghai, Canton may act as an entrepôt for rice imports to other cities.

This may suggest that China as a whole produces enough to feed itself, even by traditional farming methods, if only the food could be transported cheaply enough. As it is, foreign rice moves only to the large coastal cities, because transport costs once it leaves the sea prevent further penetration. The rice comes in because at certain periods it is cheap, and it is cheap relative to Chinese rice primarily because of the difference in transport costs between sea and land. It may be found when full facts are available that the flow of rice to large Chinese cities, which depends on price, is governed predominantly by transport costs, as it is in the case of Shanghai, and that where cheap transport is possible, local sources form the major part of the supply.

Other Food Commodities

The Yangtze delta, and more especially the fertile triangle, is a specialized agricultural area, more so than most agricultural regions of China because of its greater degree of commercialization. Its special crop is rice, with cotton, mulberry, and vegetables the only other significant items. Some wheat is grown, but it is of relatively minor importance in the fertile triangle and is raised mainly as a dry-field winter crop between rice plantings. Shanghai's dependence on local sources for rice is thus not matched by the rest of its food supply. The significance of the city's water connections with other agricultural regions is apparent in the fact that in a largely pre-railroad and pre-commercial economy, Shanghai is able to depend on distant sources for many food items in a way, if not to a degree, which is in certain respects comparable to the food supply pattern developed for large cities in the United States and Western Europe.

Shanghai has its own truck- and market-garden area, much as large Western cities have, with the difference that vegetables in particular have always been grown there and that environmental conditions in the fertile triangle are virtually ideal for market-garden-type production. Near most Western cities, soil, climate, and relief must often be fitted with difficulty into the needs of the city for fresh local food. Vegetable production in the fertile triangle

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for sale in Shanghai is not only convenient but environmentally advantageous.

How much of the city's supply of vegetables comes from its market-garden area (a day's water travel, or about a 30-mile radius from the city, an area where vegetables rival rice as the leading crop), and how much from greater distances is difficult to determine with any accuracy in the absence of published records. The principal vegetable market in Shanghai is along both banks of Soochow Creek near its mouth, which suggests that vegetables come into the city by water from its immediate environs. Merchants and vendors there, including many farmers who bring their vegetables into the city by sampan for daily or twice weekly markets, speak only of the near neighborhood of the city as the source of their wares. About 15 square miles within the Municipality of Greater Shanghai itself are occupied by vegetable crops,[21] which can take the fullest advantage both of convenience to the market and of favorable environment in this fertile flat delta land. Vegetables undoubtedly come into the city in large amounts from greater distances, although it is unlikely that bulk shipments of such perishable commodities would move beyond the delta. The railways do not carry them in any significant quantities.[22]

Although its place in the Shanghai diet is relatively minor (see above p. 139), wheat is a major food commodity for the city because of the prominent place of the flour milling industry there. While over two-thirds of the flour milled is exported, principally to north China ports, the wheat must first be brought to the city even though most of it is not eventually consumed there.

Shanghai drew its domestic wheat largely from Kiangsu. Only a minor crop within the fertile triangle, wheat is of much greater importance in the drier and colder areas of Kiangsu north of the Yangtze, and in the western parts of the delta. This production, plus the wheat raised almost entirely for sale as a dry-field winter crop within the fertile triangle, can be carried to Shanghai from nearly every producing area via the water network of the delta, including the Yangtze itself. While the delta area is by no means a leading wheat producer, it is wholly unique among wheat areas in China in its cheap and easy transport connections with a large urban

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256 438 489 market. The semi-arid north, where most of China's wheat is grown, has almost no water transportation. Water in the delta has made it possible for wheat production there to become highly commercialized as Shanghai developed into a huge industrial market which water routes made accessible in terms of transport costs for bulk shipments.* This helps to explain the anomaly of Shanghai (rather than Tientsin — a close second) as the largest wheat-milling center in China despite its great distance from China's major wheat-producing areas where other industrial centers, notably Tientsin, also mill flour.

439 505 Domestic sources of wheat, however, accounted for slightly less than half of the city's supply during most of the 1920's and 1930's. Although Kiangsu sources held the commanding position domestically, wheat also came to the city especially from the major wheat area of Shantung, by sea from Tsingtao, where it was collected largely by rail. Shanghai's connections by sea thus implemented its water connections in the delta in ensuring a steady flow of low-cost cereals. Dependence on overseas sources for more than half of its wheat was more workable economically for Shanghai, with its location and harbor facilities, than for any other China port. It was cheaper for Shanghai to bring in wheat from Canada, the United States, and Australia (the three major overseas sources in order of importance) than for Tientsin, without inland water transport, to bring in wheat from the producing areas of north China beyond its immediate Hopeh region of the north China plain.

These imports of wheat from overseas fluctuated considerably from year to year according to price conditions. As in the case of rice, wheat imports were unusually high in years of civil disorder and (or) rain and floods in the delta area, notably in 1926, and decreased markedly in intervening years of political and climatic stability.[83] Again the inference is that stoppages of water transport in the delta were the key factor. As an ocean port near major world shipping lanes, Shanghai could import at a practicable cost whatever goods normally obtained from the delta which temporary cir-

* Water as rainfall, or as irrigation, also keeps wheat yields higher in the delta than the north China average.

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cumstances interfering with inland transport made inaccessible locally.[34]

Other food commodities have a relatively higher unit-value by weight, and are therefore able to move to the city over greater distances, in some cases independently of the water network. Fruit, largely citrus, comes in principally from Chekiang which is just south of the delta but in many areas cut off from water routes by high relief. For this comparatively long-distance overland shipping, the fruit is packed in pine boxes and wrapped in sacking as a protection against frost. In the rugged areas of Chekiang it is carried by porter, and is transferred to junk or sampan when it reaches the edge of the delta.[35] Other fruit sources for Shanghai are even more distant, but most of them can ship to the city over at least part of the route by sea. Grapes and melons come to Shanghai from Hopeh and Shansi, oranges and lichees from Kwangtung and Fukien, and apples from Liaoning (southern Manchuria).[36]

Fresh meat is sold in the city only in limited quantities and is supplied (except for the tiny foreign consumption before 1941, which drew on refrigerated shipping from New Zealand and Australia) almost entirely from the immediate market-garden area. Fish and eggs are far more important elements in the average Shanghai diet than fresh meat, but some cured or salted meat is available from greater distances. Shanghai's main supply of cured hams comes from Chekiang, via Hangchow, and from Kiangsu and Anhwei by Yangtze steamer. Substantial amounts also come from as far as Szechuan and Yünnan, where the making of famous high-quality hams has long been a specialty. The tremendous cost of transporting hams from Yünnan does not apparently make their price prohibitive, although it does limit the market for them.[37] High unit-value is of course the basic factor.

Eggs have become industrial raw materials, in addition to their part in the city's diet, with the development of freezing and drying plants to prepare eggs for export. Fresh eggs are also exported from Shanghai in cold storage to places as distant as the United Kingdom. The Shanghai supply for this varied market is drawn from surprising distances. Within Kiangsu, eggs come to the city from all but two of the *hsien*.[38] These two are in the northernmost part of

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435 proportionate costs of labor and power. The same comment applies to the high figure for machinery.

288 435 In a generally more careful work dealing only with the cotton industry, Fong Hsien-ting, as shown in the accompanying table, provides a different estimate of costs in the production of cotton yarn in Shanghai in 1930.[87]

Cost Item	*Percentage of Total Costs*
raw cotton	42
labor	30
power	8
overhead and interest	20
	100

These seem much more reasonable, and they are generally substantiated by the findings of Moser and of Pearse.[88] Liu's figures for cotton spinning are also suspect because in 1934 a larger proportion of the mills' supply was the cheaper domestic cotton (see above, p. 172). If we may accept these figures of Fong's as a closer approximation to the facts than Liu's, we have at least some idea of the proportionate cost of delivered raw materials in Shanghai's largest industry, cotton spinning, and we may justifiably assume that this cost was of approximately the same order of magnitude in the other cotton industries and in the silk industries, since Liu's figures show a maximum spread of only 10 per cent among the raw materials' cost in the textile industries which he covers, and since both cotton and silk supplies came very largely from the local delta area. We have unfortunately no check on Liu's estimates of raw materials' costs in other leading Shanghai industries. Since with the exception of flour milling and machinery, these other figures seem reasonable, we can only accept them with caution.

435 ●489 [465] Even after this revision, however, the best estimate which can be made of the proportionate costs of raw materials in Shanghai manufacturing still shows these costs to be high by Western standards.* There are two major reasons for this: the relatively low cost of labor, and the relatively high cost of transport. The first

*The United States Census of Manufactures for 1939 gives value figures for manufacturing costs in major categories of manufacturing in the United States in

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condition operates to approximately the same degree in all Chinese industrial centers.[39] The second oper .es for all Chinese industrial centers, but not to the same degree.

Only two important carriers are involved: railways and waterways. Highway transport by truck remains negligible in China, relative to the scale necessary for the maintenance of modern manufacturing, and with the shortage of fuel, vehicles, and parts as well as of adequate roads it is an impractically expensive carrier. Non-mechanized overland carriers in general use in China (porters, wheel-barrows, pack animals, carts) are also notoriously expensive, and are inadequate to handle volume movements.* Representative rates for railway transport of bulk goods (exclusive of coal) in carload lots in China during the 1930's ranged from the equivalents of US$.02 to US$.07 per ton/mile.[40] This compares with an average ton/mile rate on United States railways during the same period of about US$.01.[41] Accurate or even representative rates for water transport in China are not available, but the average for unobstructed inland routes may be estimated at between US$.018 and US$.02 per ton/mile during this period. In any case, where adequate water transport is available in China, it is a cheaper carrier than railways under present conditions, and can handle bulk shipments.

As we have pointed out above in Chapter Seven Shanghai is not a major rail center, and the two railways which serve it are not

that year under five headings. Expressed in percentage terms, these costs are tabulated, for United States manufacturing as a whole, and for the textile industry in the United States:

	All Manufacturing (%)	*Textile Manufacturing (%)*
labor and salaries	53	57
materials and supplies	37	35
fuel	2	1
purchased electric power	1	4
other	7	3
	100	100

"Materials and supplies" is not defined. No figure is given for overhead and interest, so that all of these figures must be scaled down in order to make them comparable with the figures cited for Shanghai.

* Average ton/mile rates for truck transport in China range from the equivalents of US$.30 to US$.50. For porter and wheelbarrow they often reach US$1.00 per ton/mile.

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489 large carriers. The city's water connections, however, are uniquely good. (They have been outlined in some detail in Chapters Four and Seven.) It may be assumed that the cost of most delivered raw materials in other Chinese industrial centers was a higher percentage of total costs of production than in Shanghai. This assumption is borne out in the case of Tientsin. Tientsin is not only an ocean port through its association with Taku, but it lies on the Grand Canal and is, after Peking, the second most important rail junction in China. It lies at the focus of an even more extensive lowland (the north China plain and the basin of the Yellow River) than does Shanghai. Tientsin's water connections over this lowland are slight compared with Shanghai's water connections over the Yangtze basin, but with the possible exception of Hankow Tientsin nevertheless has the most favorable orientation to transport routes of any Chinese industrial center after Shanghai.

288 435 Fong Hsien-ting found, in comparing production costs in the spinning of cotton yarn (also Tientsin's largest industry by value of output) that the cost of delivered raw materials in this industry in Tientsin averaged about 70 per cent of the total cost of production, as against an average of 42 per cent for Shanghai (see above, p. 180). Yet Tientsin also lies near the center of one of China's leading cotton-producing areas, through which three railway lines run to the city. Fong's cost estimates for the Tientsin cotton yarn-spinning industry, by percentages of total costs, are shown in the accompanying table.[42]

Cost Item	*Percentage of Total Costs*
raw cotton	70
labor	15
power	7
overhead and interest	8
	100

It does not seem possible that the costs could be divided as Fong has estimated. The figure for raw cotton seems too high, and that for overhead and interest too low. Power is cheap in Tientsin, due largely to the proximity of the Kailan mines at Kaiping, 82 miles north by rail, China's largest producer of coal, and the chief source of Shanghai's coal supply as well. The figure for labor costs is of

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inland coal only from Fushun (on a navigable tributary of the Liao, and normally the cheapest pit-head coal in East Asia due to easy extraction from huge open-pit mines), Anhwei (deposits along the Yangtze), Shansi (China's major coal reserve), and Shantung (the nearest large coal deposits to Shanghai). The Chinghsing mines in Hopeh could not depend for transport on their largely unnavigable river connections with Tientsin, 190 miles away by rail.

The accompanying table lists the average annual production (in millions of tons) of the major coal-producing provinces of China in the early 1930's.[48]

Province	*Production*
Hopeh	7.7
Shantung	3.5
Shansi	2.7
Honan	2.1
Szechuan	.9
Hunan	.6
Anhwei	.6

Hopeh, with its Kaiping mines 79 miles by rail from the port of Chingwantao, supplied the largest share of Shanghai's coal for the period 1931–1936 (37.6 per cent). Shantung, immediately north of Kiangsu and the nearest large coal producer to Shanghai, but with limited water transport, supplied an average of only 23.1 per cent of Shanghai's coal during the same period. Inland Honan, Szechuan, and Hunan do not figure as sources of Shanghai coal. Anhwei, also without a seacoast, but with mines along the Yangtze, accounted for 23 per cent of Shanghai's coal supply by 1936. Landlocked Shansi, China's third producer of coal accounted for less than five per cent of Shanghai's coal supply for the same period. Overseas coal imports (Japan, Manchuria, and Indo-China) accounted for 25.6 per cent of Shanghai's coal supply for the period 1931–1936, or more than any Chinese province except Hopeh (see table above on p. 185).

Ting estimates that for China as a whole in the period of the 1930's domestic coal was moved 70 per cent (by weight) by rail, and

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30 per cent by water.[50] Shanghai was thus in a relatively favorable position in being able to draw its coal supplies so largely over water routes. For the period 1930 to 1936, the city imported an annual average of 3.9 million tons of coal from all sources combined.[51] Figures of the Maritime Customs at Shanghai for the same period show an annual average of 3.5 million tons of coal arriving in the city by sea and river [52] (so that railway haulage accounted for less than 10 per cent). Even so, the distances separating Shanghai from its sources of coal made domestic coal more expensive there than for instance in Tientsin, where the cost of Kaiping coal was about 10 per cent less than in Shanghai. Shansi coal, selling for CNC$5 per ton at the pit-head, sold after its long rail haul for CNC$10 at Taku and CNC$12 per ton at Shanghai.[53] (Note that the price doubled between the mines and Taku, but increased by only 20 per cent between Taku and Shanghai, more than twice as long a haul, but by sea rather than by rail.) Shanghai has the advantage of central location, and can draw with equal ease on domestic or overseas coal as prices vary.

Consumption of coal in the city, according to C. A. Bacon, was divided approximately as shown below.[54]

Users	*Approx. Annual Consumption, in Tons*	
Public Utilities	1,475,000	
electric power companies		1,300,000
gas works		100,000
waterworks		75,000
Other Industries	1,100,000	
Households	500,000	
Shipping	400,000	
Railways	350,000	
Miscellaneous	50,000	
TOTAL	3,875,000	

According to these figures, 37 per cent of Shanghai's coal consumption was accounted for by the electric power companies. There were four of these companies in the 1930's, of which the Shanghai Power Company (sold by the Shanghai Municipal Council to an American company in 1929, and in 1949–50 taken over by the Com-